

Poster Abstracts

Animal Waste Management Practices at Limited Resource Farms in Alabama

Duncan M. Chembezi, Kilungu Nzaku, Elicia L. Chaverest
Alabama A&M University

Animal production is a major segment of the U.S. economy. In 2002, U.S. farmers produced nearly 86 billion pounds of meat and poultry products, more than 70 billion table eggs, and 170 billion pounds of milk products. But in supplying households with hamburgers, pork chops, and ice cream, livestock and poultry farms also generate more than 350 million tons of manure that must be disposed of. Improper management of this manure has been associated with the Total Maximum Daily Load of waste and nutrients found in our nation's waterways. Under current federal regulations, livestock operations containing more than 300 animal units will have to obtain a discharge permit and submit a proper manure management plan. Land application is currently the most common and usually most desirable method of utilizing manure because of the value of nutrients and organic matter. Thus, recent policies and programs for increasing the efficient use of nutrients and protecting water quality from nutrient runoff all emphasize the importance of properly handling animal manure.

Under the new regulations, however, "concentrated animal feeding operations" (CAFOs) would be required to meet nutrient application standards as defined in a nutrient management plan. Unfortunately, these rules will not affect small livestock operations with less than 300 animal units because they are, individually, considered not to be major pollutants. Even though these limited resource farms may individually not be major polluters or stream waste load contributors, the collective impact of several limited resource operations in some localities may be significant on a particular stream segment. Meeting the

mentioned standards or regulations by CAFOs may be difficult and costly if a farm has inadequate land and manure must be moved to other crop and pasture land. Also, most livestock operations, including limited resource farms in Alabama, may not have enough land in pasture or crop production to efficiently manage their farm-produced waste and manure. Thus, the main objective of this study is to contribute to the understanding of how waste management disposal practices by limited resource farmers in Alabama impact water quality in localities in which such small livestock and poultry operations exist. The results could have significant implications, especially in states where livestock and poultry are a significant part of their agricultural economy.

For more information:

Duncan M. Chembezi
Small Farms Research Center
Alabama A&M University
P.O. Box 700
Normal, AL 35762-0700

Developing Marketing Niches for Small Scale and Minority Producers

Etaferahu Takele, Peggy Mauk
University of California Cooperative Extension

Small farm ownership declines and under representation of Hispanic farmers have been the basis for the University of California Cooperative Extension (UCCE) risk management educational program since 2000. Through funding of the Western Region Risk Management Educational program, the agricultural economics farm advisors in cooperation with commodity advisors conducted educational and research programs that reached over 500 clientele. These programs provided risk management tools including production and marketing

diversification, venturing in new production and marketing, as well as labor and personnel management

In 2003, UCCE broadened its outreach program further and cooperated with California State University San Bernardino (CSUSB) for USDA funding which led to the formation of the Inland Empire Small Farm Initiative (IESFI). This program provided the medium for networking with local and community agencies and further funding towards the development of new marketing channels and opportunities for farmers in the Inland Empire (counties of Riverside and San Bernardino).

This poster will discuss the cooperative efforts that have led to new funding for the development of new marketing ventures. It will also present the educational programs conducted that provided tools and skills for the feasibility and sustainability of farmers in southern California.

For more information:

Etaferahu Takele
21150 Box Springs Road
Moreno Valley, CA 92557

The UC Small Farm Program Agricultural Tourism Project

Desmond Jolly, Eileen Eckert, Kira O'Donnell, Kristin Reynolds
University of California, Davis

In 1998, the University of California Small Farm Program, led by director Desmond Jolly, launched the Agricultural Tourism Project. Agritourism has long been a cottage industry in California, with organizations such as Sonoma Farm Trails and Apple Hill Growers' Association marketing farm visits and related tourism operations to boost farm profitability. The purpose of the Agricultural Tourism Project was to expand agritourism to new areas, increasing its potential to strengthen ties between urban and suburban consumers

and the farmers who produce their food; educate citizens about the value and importance of protecting farmland; and preserve small farms and the cultural heritage and resource they represent. This poster presentation chronicles the development and impacts of the Agricultural Tourism Project, from agritourism enterprises and farm trails maps to media coverage to evidence of ways the project has achieved its purposes.

For more information:

Desmond Jolly
UC Small Farm Center
One Shields Ave.
Davis, CA 95616

Outreach Methodologies for Minority Small Farmers -what works, what doesn't work

Richard H. Molinar
University of California

Many methodologies are used to disseminate information to small farmers, e.g. group meetings, breakfast meetings, hands-on classroom, hands-on field, radio, television, video, DVD, audio tapes, newsletters, publications etc. Which methodology is used may vary from group to group depending on ethnicities, available media in the area, resources available to the communicator, and recipient characteristics (age, gender, education). Employing a Hmong program assistant has contributed immensely to the success of the small farm program in Fresno County, California. Besides helping to establish trust with the community and being fluent in their languages, Michael Yang makes numerous trips out to their farms to assist them with problems. Radio has been the most effective method utilized by Cooperative Extension for 'Hmong' small farmers. Establishing partners such as USDA-FSA and USDA-RMA with the radio broadcasts has contributed to the diversity in topics and

resulted in greater visibility for all of the organizations. Spanish radio has seen only moderate success. Written materials can be very useful but our experience has seen a greater response from the train-the-trainer and CBO's rather than from the individual farmer. We have materials in Lao, Hmong, Cambodian, Spanish, etc. The bottom line is "get to know your clientele", and do not assume that the same method works equally well with all groups of people.

For more information:

Richard H. Molinar
1720 South Maple Ave
Fresno, CA 93702

Soil Solarization as a Methyl Bromide Alternative for Small Family Farms

Richard H. Molinar
University of California

Small Family farms and limited resource growers, many of them ethnic minorities, and organic farmers in the San Joaquin Valley and other agricultural areas in California are at a disadvantage when it comes to economically viable options for pest management.

Research and implementation projects conducted at UC Kearney Agricultural Center, and on-farm in surrounding areas over the past 10 years have provided guidelines and technical support for growers wishing to implement solarization and related techniques to provide non-chemical soil disinfestation for a wide variety of specialty crops. The method utilizes the heat produced by the sun which is trapped under a clear plastic over a period of several weeks during the warm summer months. This non chemical method can be utilized very easily by the grower, requires no permits, is ecologically sound and environmentally friendly, and safe to the family and workers.

For more information:

Richard H. Molinar
University of California
1720 South Maple Ave
Fresno, CA 93702

Market Driven New & Specialty Crop Production in Southern California

**Ramiro Lobo, Gary Bender,
Mark Gaskell, Ben Faber**
UC Cooperative Extension

Globalization of agriculture and the proliferation of free trade agreements has resulted in increased foreign competition and declining profit margins for agricultural producers in San Diego County. This situation, combined with escalating production costs (resulting from high land values, expensive water, increased regulations, urban sprawl, and high labor costs) paint a difficult picture for most small scale agricultural producers in Southern California.

The rapid decline in the profitability and acreage of Valencia oranges caused by year round availability of Navel oranges illustrates the devastating effects these factors can have on local agriculture. The current situation with the North American Free Trade Agreement, and the pending entry of Mexican avocados to California will have similar effects on the local avocado industry.

Research efforts by the University of California Cooperative Extension Farm Advisors in Southern California shows that new or alternative crops can provide suitable options for growers who cannot compete growing conventional agricultural commodities. However, the research also shows that growers must have a good marketing strategy and grow these new or specialty crops with specific market windows or market niches in mind if they are to be successful. Results and field observations focusing on blueberries,

lychees, longans, guavas and dragon fruit will be used as examples to highlight our approach to identifying and evaluating new or specialty crops for commercial production in Southern California.

For more information:

Ramiro Lobo
County of San Diego, MS 0-18; 5555
Overland Avenue, Suite 4101;
San Diego, CA 92123

**Evaluation of Grass Clippings as
a Feed Source for Sheep**

**Anthony Knight, Dennis Lamm,
Thomas McBride, Galen Brunk**

Colorado State University
Cooperative Extension

Tremendous quantities of grass clippings are hauled to landfills daily creating a burden to landfills and a missed opportunity for livestock producers. With ever-increasing urban development involving bluegrass turf there is an excellent potential in a sustainable environment for feeding livestock fresh or ensiled grass clippings. Although some lawn and turf pesticides state on the label that the clippings may not be used for livestock consumption, the three major herbicides used on turf (2, 4-dichlorophenoxyacetic acid (2, 4-D), 2-methyl-4-chlorophenoxy propionic acid (MCPP), and Dicamba) have no label restrictions for livestock. Consequently, appropriately handled grass clippings could be available for feeding to sheep and cattle.

Three studies were conducted with sheep to evaluate the suitability of grass clippings as a food source. The first trial involved a comparison of growth and carcass characteristics of feeding fresh grass clippings as compared to other feeds. The second trial involved determining which carbohydrate source would work best to make the best quality silage. The third trial compared the growth

of sheep on dried bluegrass clippings. Urine and blood from the sheep were analyzed using GCMS to determine the duration of elimination of 2,-D and MCPP. The data demonstrated that sheep gain on both fresh and dry grass clippings with carcasses having acceptable quality. In addition, the bluegrass produced high value silage when mixed with other carbohydrates. (The herbicide residue data is currently being analyzed and will be completed by July 1, 2005.)

For more information:

Dennis Lamm
9755 Henderson Road
Brighton, CO 80601-8114

**Production Systems to
Improve the Efficiency and
Profitability of Small
Livestock Family Farms**

Dr. Ray Mobley

Florida A&M University

Limited resource farmers in North Florida and Southern Georgia have often experienced difficulties in developing and sustaining their farms. The complexities of their production systems often result in inefficiency and low profitability. In light of the aforementioned problem, Florida A&M University (FAMU) has collaborated with the University of Florida (UF) and Fort Valley State University (FVSU) to develop a program that will help to alleviate production complexities for small farmers in North Florida and Southern Georgia.

The program under development is entitled "Production Systems to Improve the Efficiency and Profitability of Small Livestock Family Farms".

The primary objective of this project is to provide a unique, innovative, and cost effective animal health and production system. Specifically, the system will be

geared toward reducing capital and production costs such that efficiency and profitability will be realized.

For more information:

Ray Mobley
Cooperative Extension Program
Florida A&M University
202-G Perry Paige South
Tallahassee, FL 32307

**Developing Hot Pepper as an
Alternative Crop Enterprise for
Small Farmers**

**C.S. Gardner, G.L. Queely, V.
Richardson, T. Hylton**
Florida A&M University
Jesusa C. Legaspi
USDA-ARS

Small farmers need alternatives to traditional crops in order to remain competitive or fully engaged in agriculture. In 1994, FAMU/CESTA, identified hot pepper (*Capsicum spp*) production as a potential alternative crop for farmers. Selected varieties were the Scotch Bonnet, Caribbean Red and the orange Habanero. The project dubbed 'A Hot Row to Hoe' focused on field studies, market identification and value added products. Field studies were carried out both on-station and on-farm and included response to inorganic and organic nutrient source, spatial arrangement, and effects of disease and insect organisms. Market identification and value addition addressed fresh fruit sales and processing. Participating farmers were initially provided with input materials and technical advice. Farmers have shown a high level of interest in the project and have been constantly involved in the developments. To date approximately 10,000 seedlings have been distributed to over 70 farmers and three cooperatives in 12 Counties in Florida and Georgia. Fruit yields up to 6,000 kg ha⁻¹ at selling price of up to \$5.00 kg⁻¹ have been realized

from these crops. Insects and pathogens are not prevalent on the crop, although *Colitotricum* was identified in a green house observational study. Evaluations are being continued to provide technical information for producing the crop.

For more information:

C.S. Gardener
College of Engineering Sciences
Technology and Agriculture
Research and Extension Program
Florida A&M University
Tallahassee, FL 32307

**Cultivating Success -
Sustainable Small Acreage
Farming Education Program**

Theresa Beaver
University of Idaho

Cultivating Success is a unique community-based education program offering courses that can be taken individually or in a series to earn a certificate in Sustainable Small Acreage Farming and Ranching. The courses are open to academic students at the University of Idaho and Washington State University, and are open to community members for Continuing Education Units. Courses are offered in many counties throughout Idaho and Washington.

The program was developed collaboratively between partners at the University of Idaho, Washington State University, and Rural Roots. The overall program coordinated is based at the University of Idaho.

The objective of the program is to create and implement new educational programs that will increase the number and foster the long-term success of small acreage sustainable farmers and ranchers in Washington and Idaho. The program was developed for students and community members interested in starting a small acreage enterprise, working in agricultural

service and support sectors or policy development.

Farmers and other community resource people are brought into the classroom, field trips taken to farms and other agricultural venues, and farmer-student mentoring relationships are encouraged.

A 15-18 unit certificate is available for students who complete two required courses and one from each of three modules:

Required courses:

Sustainable Small Acreage Farming and Ranching On-Farm Apprenticeship

Business Module:

Agricultural Entrepreneurship

Sustainable Food Systems Module:

Science, Society and Sustainable Food Systems Field Analysis of Sustainable Food Systems World Agricultural Systems

Sustainable Production Module:

Organic Gardening and Farming
Organic Farming Practicum
Sustainable Agriculture

For more information:

Theresa Beaver
UI-PSES
P O Box 442339
Moscow, ID 83844-2339

Firing Your Customer and Other Tips to Ensure a Successful Business

Mary Holz-Clause
Iowa State University

Why are some value added agriculture businesses successful and others fail? This proposed session will delve into recent research examining this issue. Some of the points that will be covered include research indicating adequate capitalization and operating capital, focus

of purpose, management execution and determining which customers to fire and which ones to keep are key issues for success. Based on case studies of more than 30 value added agriculture businesses, the presenter will provide checklist of how to make a business more successful and will explain a new tool, called the Agricultural Marketing Resource Center that can provide producers training and education to help improve their odds of success. The Web-based Center features more than 75 commodities, and has more than 6000 links of marketing resources. Included in the Website, located at www.agmrc.org are extensive case studies and educational tools and templates. The Center averages more than ½ million visitors each month.

For more information:

Mary Holz-Clause
1111 NSRIC Building
Ames, IA 50011

The Growing Growers Training Program: An apprenticeship program for market gardeners serving Kansas City

Edward Carey

Kansas State University

Katherine Kelly

Kansas City Center for Urban
Agriculture

**Mary Hendrickson, James Quinn,
Lala Kumar**

University of Missouri

Dan Nagengast

Kansas Rural Center

Craig Volland

Kansas City Food Circle

The Growing Growers Training Program facilitates on-farm apprenticeships complemented by workshops on critical skills to train new growers and improve the skills of existing growers to meet large demand for local and organically grown produce in Kansas City. The program is a

collaborative effort of K-State Research and Extension, University of Missouri Extension, the Kansas City Food Circle, and the Kansas Rural Center, and was established in response to requests by area organic growers for a training program to increase numbers of local organic producers. In the fall of 2003, we developed the components of the program, including a curriculum designed to help apprentices gain a set of core competencies through practical and theoretical training activities, including one-on-one training by host farmers, reading, workshops and farm tours. During the 2004 growing season 11 apprentices worked part time or volunteered on 8 host farms, and participated in a series of 11 workshops and farm tours over the course of the year. Based on self-assessment, apprentices felt they gained considerable skill in most of the core competencies. Both apprentices and host farmers expressed high satisfaction with the program. At the start of the 2005 season, demand for the program increased, with 25 apprentices with diverse backgrounds placed on 12 host farms. Workshop participation was not restricted to apprentices, and over 200 trainees paid to attend workshops during 2004, helping to generate funds to cover program costs. It is still early to judge program success, but 9 of 11 of the 2004 apprentices are engaged in full- or part-time market gardening in 2005.

For more information:

Edward Carey
K-State Research and Extension Center
35125 W. 135th St.
Olathe, KS 66061

High Tunnels for the Central Great Plains: A progress report

**Edward Carey, Rhonda Janke,
Sorkel Kadir, Kim Williams**

Kansas State University

Lewis Jett, James Quinn

University of Missouri

Laurie Hodges

University of Nebraska

Dan Nagengast

Kansas Rural Center

High tunnels for the Central Great Plains is a multi-state research, extension and education effort begun in 2001 to investigate and promote the use of high tunnels (unheated greenhouses) as a tool for market farmers in our region. Replicated research high tunnels were established at four sites and crop production studies are ongoing, each with differing emphasis as follows:

Warm season crops – Columbia, Missouri

Leafy greens under organic and conventional management – Olathe, Kansas

Cut flower crops – Lincoln, Nebraska

Strawberry production systems – Wichita, Kansas

Comparisons of high tunnel and field production, and collection of meteorological data are conducted to assess benefits of these structures. On-station research is complemented by on-farm trials with multiple cooperators.

Our research results and additional information on high tunnels are disseminated through multiple extension and outreach activities, including

Research reports and extension publications,

Field days and farm tours,

A day-long workshop at the annual regional vegetable growers conference

A website , www.hightunnels.org
for growers and educators
An E-mail listserv

High tunnels have been well-received by growers in our region, and are becoming an increasingly important component of their production systems, providing season extension, and crop protection benefits that rapidly return the cost of investment. Since 2001, more than 100 growers report adopting these structures, and interest remains high, indicating the likelihood of continuing adoption.

For more information:

Edward Carey
Kansas State University
35125 W 135th St.
Olathe, KS 66061

Retirement and Estate Planning for Small Farm Families

Marion Simon

Kentucky State University

Sharon DeVaney

Purdue University

Miessha Thomas, Heather Gray

The Federation of Southern
Cooperatives

Janie Hipp

University of Arkansas

David Wiggins

USDA – RMA

The Retirement and Estate Planning for Small Farm Families website includes case studies and educational materials targeting Women farmers, Native American farmers, African American farmers, and Small Family farmers. Links include governmental, non-profit and educational websites that provide research-based information on estate planning, investment planning, planning for medical needs, and short-term, interim, and long-term retirement planning strategies. There is an emphasis on estate planning, property transfer, and multi-generational family decision-making.

Information is currently being added to the website. The goals of the web-based information site is to provide a source of research-based information to county extension agents, service providers, and family farmers to assist farmers with their decision-making. The website can be accessed at <http://www2.ces.purdue.edu/farmriskmgt> or at <http://sharepoint.agriculture.purdue.edu/ces/farmriskmgt/default.aspx>

Educational programs to date have included the 2004 Kentucky Small, Limited-Resource/Minority Farmers Conference, the 2005 USDA-1890 Small Farm Education Conference in Nashville, TN, and the 2004 Kentucky Women in Agriculture Conference. The project is sponsored through a USDA Risk Management Agency Outreach Cooperative Agreement.

For more information:

Marion Simon
Kentucky State University Cooperative
Extension Program
400 East Main St.
Frankfort, KY 40601

The “Third Thursday Thing” - Sustainable Agriculture Education at Kentucky State University

Marion Simon

Kentucky State University

The Kentucky State University Cooperative Extension program’s “Third Thursday Thing” Sustainable Agriculture Monthly workshops are designed to transition Kentucky’s small farmers from a tobacco based agriculture to practical, sustainable options. Kentucky’s topography ranges from the mountainous, highly erodible Appalachian region, through the karst central Kentucky region, to the Mississippi River bottomlands in the west. Kentucky’s small farms numbering some 80,000

contribute more to Kentucky's economy than do small farms in any other state. As small farmers and agricultural professionals with Extension, Research, USDA, state, non-profit and local agencies seek answers and methodologies to help sustain Kentucky's small farm families as they transition into sustainable farming systems that efficiently and effectively utilize the family's resources and the farm's resource base. As they develop programs, they need to evaluate cropping, production, and marketing systems that not only consider profitability and economic sustainability, but also consider the quality of life, safety, stress management, community issues and environmental quality. These systems must also reflect the diversity of the farming population and include an economic mix of traditional, alternative, low input, and organic production and marketing systems.

"The Third Thursday Thing" was initiated in 1997 as a Southern SARE-PDP project to educate agricultural professionals about such issues and topics. Immediately after the program started, farmers, consumer groups, and the public clamored to be included. "Third Thursdays" then became shared learning experiences that emphasized hands-on learning experiences. As a result of the program, farmers not only receive educational training, but they become directly involved in Extension and Research activities and programming. This helps researchers to focus their applied research into needed topic areas. "Third Thursdays" provide a mechanism for KSU and other researchers to directly interact with farmers and to identify farmers who share their interests and are willing to support, and participate in, collaborative projects.

"Third Thursdays" have had participants from over 100 Kentucky counties, eight European nations, and twelve states ranging from the east to the west coasts. Success stories include the development and passage of Kentucky's H.B. 391 to provide a system for home based

processing and local marketing and the development of the Partners for Family Farms to influence and expand local food initiatives, local food marketing systems, and value-added local meat marketing. Partners include farmers, consumers, the League of Urban Cities, the Kentucky Departments of Agriculture and Health and Human Services, the University of Kentucky, Kentucky State University, Morehead State University, Berea College, and Heifer Project, Intl.

For more information:

Marion Simon
Kentucky State University Cooperative
Extension Program
400 East Main St.
Frankfort, KY 40601

**Nutrition, Economics, and
Field Demonstrations of
Sunshine Bass**

Carl D. Webster
Kentucky State University

The goals and objectives of this IFAFS project are to determine nutrient requirements and evaluate practical diets for hybrid striped bass (sunshine bass) to allow farmers to feed the most nutritious, yet least expensive diets, so as to reduce operating costs; determine enzyme activities of larval white and striped bass; analyze the economics of production for sunshine bass so that this segment of the U.S. aquaculture industry can remain profitable, while allowing small and limited-resource farmers to be competitive by reducing production costs and providing economic data for management decisions; implement regional, multi-state demonstrations (field trials) of sunshine bass with interested farmers so they can learn proper aquacultural techniques and to develop markets for sunshine bass to allow stakeholders the potential to diversify farm incomes and crops; and to hold a national, science-based, producer-oriented meeting on the data generated

from this project. This project will utilize a system-wide approach to assist small and limited-resource farmers who will integrate nutrition, economics, information transfer, and field trials which will create a unified and multi-faceted approach for research, extension, and teaching of sunshine bass aquaculture. It will also attempt to incorporate farmer input so that methods to improve efficiency and profitability of sunshine bass for these farmers so they may reduce capital and input costs and/or diversify farm income and crop production.

For more information:

Carl D. Webster
Kentucky State University
Aquaculture Research Center
Frankfort, KY, 40601

Mini Experiment Stations in Small Farm Communities

Dawn Mellion-Patin, O. Bandele
Southern University

Commodity specific and community-based experiment stations in the state of Louisiana traditionally conduct research that supports large-scale producers. More often than not, these efforts do not benefit small farmers who, oftentimes, have limited access to capital and use different production practices. The Southern University Agricultural Research and Extension Center agricultural scientist and extension employees recruit small farmers, who serve as model farmers, and use their farms as demonstration sites for farm tours and cultural practice demonstrations, with other small and mostly limited resource farmers. The primary objective of this arrangement is to provide community-based results from on the farm research in climates similar to the producers. The Extension agents and 2501 Program staff work with researchers at the university and in some instances private companies, to design and plan the demonstration(s). The focus of this

outreach activity is to demonstrate the use of recommended cultural practices identified by the university in farm communities, utilizing farmers, their situations and environments. Farm tours and demonstrations are conducted where the participating farmers share their experiences (results) with other farmers. Instruction and demonstrations as a part of this activity focused on livestock health and agronomic crop variety selection. As a result of participating in these farm demonstrations and tours, farmers are better able to make decisions concerning their production practices, selection of varieties to use and overall management of their enterprises.

For more information:

Dawn Mellion-Patin
Southern University Research and Extension
P.O. Box 10010
Baton Rouge, LA 70813

Professional Support for Beginning Farmers

Kathy Ruhf
New England Small Farm Institute

One of the biggest challenges facing US agriculture today is farm entry. People who want to farm or have started farm businesses face considerable barriers, and traditional support services are not adequate to meet the needs of these diverse new farmers. The Growing New Farmers (GNF) project was a four-year comprehensive effort to establish a responsive service infrastructure to provide new Northeast farmers with the support and expertise they need to succeed.

Funded by USDA, GNF created a service provider Consortium with nearly two hundred member organizations from Maine to West Virginia. Project participants created a comprehensive, interactive website, conducted research,

launched programs and pilot projects, trained professionals, educated policy makers, and produced dozens of tools and resources for beginning farmers and their service providers. As a consequence, the Northeast has the most far-reaching and well-established service network for beginning farmers in the country – one that will be sustained beyond the end of its USDA support. This poster session will describe the project, display resources and feature the website.

For more information:

Kathy Ruhf
NESFI
275 Jackson Street,
Belchertown, MA 01007

**Learning from the Lacerator:
Experience of a Farmer
Research Group**

**Sue Ellen Johnson, Arnie
Voeringer, Matt Rulevich,
Roy Bergeron**

The University of Connecticut and the
New England Small Farm Institute

We will outline the experience we have had developing one of five farmer-led research groups funded by NESARE. We will present the origination and formation of the group, the progress of developing topic and finding additional funds, the membership dynamics, and evolution of the group. Twelve farmers have been involved with this research group. We will present their comments on the research group process and discuss the overall outcome of the research group process on networking and program delivery.

For more information:

Sue Ellen Johnson
NESFI
275 Jackson Street,
Belchertown, MA 01007

**Positive Response to "New"
Best Management Practice for
Chicken Producers**

Terry E. Heinard
USDA - NRCS

Overwhelming positive response by chicken producers is seen to the opportunity for cost share of Best Management Practice by USDA-Natural Resources Conservation Service (NRCS) Caroline County, located on the Eastern Shore of Maryland is a serious agricultural production county, with 75% of the farms in the USDA "small farm" category. Maryland NRCS offered for cost share through the Environmental Quality Incentives Program (EQIP), concrete heavy use area pads to be installed at the loading doors of broiler and roaster chicken houses. Chicken producers receive and deliver multiple flocks during the year, utilizing mechanical equipment that creates soil erosion and manure deposition at the ends of the chicken houses. The access doors to many of the chicken houses are located on soils with high water tables and are adjacent to drainage ditches, this practice allows farm management to affect a significant reduction in environmental impacts with a small out of pocket cost. The heavy use area pads provide a solid surface that reduces the erosion caused by loading/unloading of chicken flocks. This surface also provides an impervious surface where any spilled organic material such as bedding and manure can be removed and stored in an animal waste storage facility. Since this practice was first offered in 2002 and for each successive year, the response has exceeded the available funds for assistance.

This practice has a simple design, can be installed by the producer at little out of pocket costs, and the EQIP program will reimburse producers for materials and labor at an established flat rate.

For more information:

Terry E. Heinard
USDA - NRCS
640 Legion Rd., Suite 3
Denton, MD 21629

Teaching Integrated Parasite Management (IPM) to Sheep and Goat Producers

Susan Schoenian

University Maryland Cooperative Extension

Most sheep and goat producers are small-scale, owning fewer than 30 females. An obstacle to profitable production is gastrointestinal parasites (worms), the primary health problem affecting grazing small ruminants. Worms have become increasingly difficult to control because of widespread drug resistance. Maryland Cooperative Extension developed an educational program, "Integrated Parasite Management (IPM)" to teach sheep/goat producers modern, practical methods for effective worm control. IPM workshops are coordinated through county extension offices and producer groups. Teaching format is 2 hours lecture/discussion and 2 hours hands-on. Since 2004, seventeen workshops have been held in six states, attracting 334 participants from 10 states. 374 adults and youth participated in educational programs which did not include the hands-on part. Based on the results of pre- and post-tests, producers have increased their knowledge of internal parasites by 30 to 40 percent. 334 producers and extension agents have been certified in the use of the FAMACHA© system. Grant funds, which paid for equipment and travel, are also being used to develop educational materials and fund parasite-related research. As a result of the Maryland IPM program, over 200 producers are using the FAMACHA© eye anemia chart to make deworming decisions. Producers have implemented

various other recommended IPM techniques (e.g. fecal egg counts).

For more information:

Susan Schoenian
University Maryland Cooperative Extension
Western Maryland Research & Education Center
18330 Keedysville Road
Keedysville, MD 21756

Mexican Farmers in Michigan: Preliminary Results

**Juan Marinez,
Bernardo Lopez Ariza**

Michigan State University Extension
Javier Franco, Farmer

The tremendous growth of the Hispanic population in rural America presents new opportunities as well as challenges for agricultural agencies and rural communities. For example, in Michigan, the population of Hispanic farmers increased by 163% from 1997 to 2002. However, few research projects have attempted to explore how this new social phenomenon is developing in this area. The purpose of this exploratory study is to understand the motivations that Mexicans want to operate their own farms, how they are organizing the operation of these farms, and the barriers or problems that they face in this activity.

The research was developed between August 2004 and May 2005. Several reasons exist as to why the Mexicans want to operate their own farms in Michigan. First, for the Mexicans, the agriculture is part of their cultural background. For Mexican farmers, agriculture has a strong relationship with values traditionally maintained and affirmed within a family. The agriculture is part of a lifestyle that they love and prefer. There are strong relationships between the types of farming and organization that they operate in their home country, and now we see the same in Michigan. The organization of the farm is around the family nucleus. The

Mexicans organize their farms as a family business, where members of their families take some roles in the farm. Since the small holdings are not adequate to support the entire family, Mexican farmers hold off farm employment. Various types of barriers or problems were identified which were organized in two main categories: (a) barriers directly related to the farmer –inside-barrier- and (b) barriers not related directly to the producer –outside barrier.

For more information

Juan Marinez
Michigan State University Extension
Rm 11 Ag. Hall
East Lansing, MI

**Targeting a New Audience:
Acreage Owners Workshops -
Scotts Bluff County, Nebraska**

Tom Holman

University of Nebraska Extension

Based on numerous requests from a number of people who had recently moved into the area, faculty stationed at the Panhandle Research and Extension Center formed a committee to address the clientele's problems. The nature of these calls indicated that the recent immigrants were unfamiliar with Western Nebraska and the unique climate of the area. Developing the program required that we target this new audience. Ours was a unique and successful approach to audience identification.

The Scotts Bluff County Assessor was asked to develop a spread sheet that included: Assessor's number, name, address, acreage, valuation of improvements and date improvements were constructed. He queried this for all properties not within the city limits. This query created a list of over 1500 potential clientele. This list was reduced by eliminating known land owners, parcels over 40 acres, improvements less than

\$50,000.00 in value, and improvements older than 1985. The resulting list was 450 potential clients.

As a result of our efforts, we designed three workshops in the spring of 2004 averaging 36 participants, one in the summer of 2004 with 18 participants and two in the spring of 2005 averaging 12 participants. At each of these programs, participants were asked for their future program needs as part of the evaluation. The evaluations indicated knowledge gained by 65% of the participants and 46% indicated they would make operational changes.

For more information:

Tom Holman
University of Nebraska Extension
4502 Ave. I
Scottsbluff, NE 69361

**Enhancing Research and
Extension Support for Small
Farms: the Cornell Experience**

Anu Rangarajan

Cornell Small Farms Program

In this poster we will summarize our experiences with fostering institutional change within a leading land grant university. In 2000, Cornell University established a Small Farms Task Group to identify small farm needs and to strengthen research and extension programs for small farms in New York State. Major programming gaps and barriers identified in 2000 included:

- Lack of research and education targeted specifically to small farms
- Lack of visibility for existing efforts that serve, or could serve, small farms
- Lack of CALS departmental support for, and appreciation of Cornell Cooperative Extension educators' work with small farms

- CALS/CCE focus on production efficiency and maximizing profits
- Lack of understanding of, interest in small farm needs

Since that time the Task Group, together with the Cornell Small Farms Program, has helped to produce a significant shift in attitudes and programming efforts within the Cornell Cooperative Extension (CCE) system. Successful efforts include:

- The Cornell Small Farms Website, www.smallfarms.cornell.edu
- Small Farm Quarterly magazine
- CCE Grants Program for Small Farm Education
- Professional development programs for CCE and other service providers
- Small farm discussion groups and mentoring programs
- "Accountability Meetings" to engage farmers in program planning and evaluation

As a result of these and other efforts, small farm operators in New York have a growing appreciation for Cornell, particularly for Cornell Cooperative Extension. Next frontier: Enhancing CALS research and teaching programs to better support small farms.

For more information:

Dr. Anu Rangarajan

Cornell Small Farms Program
135C Plant Science Building, Department of Horticulture
Cornell University, Ithaca, NY 14853

Generations of Women in Agriculture and Economic Solutions

**Mary Mafuyai-Ekanem,
Sheilda Sutton**

North Carolina A&T State University

Women play vital roles in agriculture, but face stiff challenges and limited opportunities in competing for resources in our society. North Carolina Cooperative

Extension Program's Women in Agriculture Program (WAP) has empowered women access to a wider array of resources than historically available to them. The goal is to help women plan their preferred futures as they strive to overcome socioeconomic crises in times of change. WAP targets women who are farm/ranchland owners, operators, managers, laborers, wives, marketers and retirees with women organizations, leaders and others delivering education and technical support.

As a result of the partnership program, more women and beginning farmers/ranchers are now becoming interested in acquiring capital, assets, investing in agriculture and managing crises. Many are making sound business decisions; financial practices; and new business ventures; product quality certification enabling them to meet market demands; while others modified production systems, established agro-tourism, and purchased product liability insurance coverage. In the past five years, the economic impact translates to approximately 1,700 women and their families increased their net farm income by \$16,749,500. WAP societal benefits include well informed volunteers, improving quality of life for limited resources audiences and communities.

Poster presentation of organizational structures, selected cooperatives, businesses and other successful WAP initiatives.

For more information:

Mary Mafuyai-Ekanem
North Carolina A&T State University
P. O. Box 21928
Greensboro, NC 27420-1928

Women Willing Workers Change Agents in Agricultural Communities

**Mary Mafuyai-Ekanem, Mary
James, Patricia Shapard, Sherri
Lee, Sennie Liasane, Nelson James**
North Carolina A&T State University

With tobacco buy-out now final, farmers are dealing with great anxiety as they transition from tobacco dependency into a more uncertain future. It is difficult for small-scale producers to find investment capital and other resources to operate a profitable farm and maintain their families. Production inputs are expensive, energy (such as gas, heating, and cooling), labor, and other costs all have been steadily increasing. Farm prices received by growers have not kept up with production costs. Creative producers sell enough to cover their production costs while the rest operate at a loss year after year. Some producers are finding solutions in cooperatives, especially bulk purchasing of farm inputs and group marketing with multiple outlets. Many farmers are searching frantically for alternative crops and profitable enterprises to replace loss from tobacco crops. For these reasons and many more, area women organized the Willing Workers Small Farmer Cooperative (WWSFC), Inc to educate farmers in taking advantage of bargaining opportunities and resources that are traditional unavailable in the community.

The WWSFC display will show how the Women in Agriculture Program structures and strategies brought dynamic social changes with improvements to small family farms and communities in Southeastern North Carolina.

For more information:

Mary Mafuyai-Ekanem
North Carolina A&T State University
P. O. Box 21928
Greensboro, NC 27420-1928

Evaluation of Garlic's (*allium sativum*) Anthelmintic Properties to Control Internal Parasites

**Mulumebet Worku, Roberto
Franco, Keith Baldwin**
North Carolina A&T State University

Parasites are known to cause diminished health, growth rate and feed conversion. Producers wanting to treat this problem in accordance with organic standards are using natural materials. To date, however, there is limited scientific evidence regarding the potency and effectiveness of these substances. Consequently, there is a need for controlled experiments to support the use of these materials. One substance that is actively antibacterial and may have good antiparasitic properties is Garlic (*allium sativum* L.). The purpose of this study was to evaluate a commercial, organically approved garlic product (Gempler s) as a dewormer and to establish its dosing rates for goats. A team consisting of a researcher, an extension specialist and a graduate student assigned twenty female Boer goats, weighing 40 kg, to four groups (0, ½ tsp, 1 tsp, and 2 tsp), of five animals each. A comparison of fecal egg counts (FEC) (for roundworms and *coccidia* eggs), packed cell volume (PCV), FAMACHA scores, and body weight (BW) in GI parasite infected goats vs untreated animals was conducted. Data were analyzed using the SAS general linear model (GLM) analysis. The results of the FEC (roundworms and coccidian eggs), FAMACHA scores, PCV and BW are represented in Table 1. FEC for roundworms was found to be significantly positively correlated with FAMACHA scores ($r = 0.323$, $P \leq 0.0015$) and significantly negatively correlated with PCV ($r = -0.338$, $P \leq 0.0009$), but not with any other parameters. The FEC for *coccidia* eggs was significantly negatively correlated with PCV ($r = -0.207$, $P \leq 0.0475$): not other correlations were significant. High FECs for roundworm and *coccidia* eggs were observed when low PCV values were recorded. PCV's negative correlation with

FAMACHA scores indicates the presence of anemia ($r = - 0.332, P \leq 0.0009$). The organically approved garlic extract did not reduce FEC or alleviate anemia at the concentrations tested.

For more information:

Mulumbet Worku
North Carolina A&T State University
1601 East Market St.
Greensboro, NC 27411

Evaluation of Three Compost Sources for Strawberry Production

Mary Helen Ferguson
N.C. State University

Strawberries are an important horticultural crop for the United States, accounting for over one billion dollars of income in 2004, and one that small farmers can find profitable. Compost is frequently utilized in organic production systems, and restrictions on methyl bromide use have contributed to increased interest in alternative disease management strategies. Previous work has found compost to be effective in suppressing a variety of soil-borne diseases, including black root rot of strawberries. However, the successfulness of compost incorporation as a component of disease management has varied according to the source of the compost, among other factors. Our experiment investigates the effects of three North Carolina compost sources on disease, plant growth, nutrient availability and uptake, and yield in a strawberry plasticulture system in Goldsboro, N.C.

For more information:

Mary Helen Ferguson
Dept. of Horticultural Science
NC State University
Campus Box 7609
Raleigh, NC 27695-7609

Plasticulture as an Alternative for Small Farmers

Martin Brewington, Nelson Brownlee, James Hartsfield, Larry Wright

North Carolina Cooperative
Extension Service

Until recently, tobacco was the primary means of generating income on small farms in North Carolina. Tobacco demand has dropped in today's economy and with the tobacco buyout now a reality, efforts are needed to find alternative crops that current and former tobacco farmers could grow and market. The plasticulture system has helped an increasing number of farmers reach these goals. The Robeson, Columbus and Duplin County Centers of the North Carolina Cooperative Extension Service, NC A&T State University, and the Tobacco Trust Fund Commission are working with farmers in Southeastern North Carolina to plant acreage in specialty crops that provide relatively high per-acre returns. Today's vegetable growers are looking for new ways to achieve higher-quality produce, superior yields and early spring markets. A plastic laying machine and a water wheel transplanter was purchased for this region to help alleviate some of the cost farmers must incur. In 2004, ten farm families planted twenty-six acres of produce using plastic mulch and drip irrigation. A survey of these farm families indicated they generated over \$50,000 in farm income. This year three new producers have been added. Over 180 small and part-time farmers have visited these on-farm demonstration sites during extension sponsored tours.

For more information:

Martin Brewington
North Carolina Cooperative Extension
Service
P.O. Box 2280
Lumberton, NC 28359

**Assessing Farm Safety
Intervention among Youth and
Rural Farmers in North Carolina]**

**John Paul Owens, Benjamin Gray,
Anthony K.Yeboah**
North Carolina A&T State University

The agricultural sector contributes significantly to the economies of Ashe and Alleghany Counties located in northwest, North Carolina. Because of their rural location, many of farms located in these counties rely on adolescents to provide a significant amount of farm labor. Agricultural work is both physically demanding and has one of the highest accident rates of any occupation. County Extension programs and researchers recognize the necessity of using youth labor but also the importance of working with farmers to decrease conditions that result in harm to younger workers. Consequently, Extension has implemented educational programs that target youth (14 to 17 years-of-age) to instruct them on taking precautions to avoid accidents and to share these lessons with their parents about general farm safety awareness. The objective of this research project was to assess Ashe and Alleghany Counties' Cooperative Extension "farm safety field day model" intervention program that targets rural youth and farm families. Data from a pre-test and post-test field day evaluation questionnaire and focus groups on safety awareness were analyzed. The results indicated a favorable evaluation of the field days and improved post-tests scores following the safety education intervention. The students' farm safety knowledge improved and families reported making farm safety a priority. The results also indicated that through youth involvement in the safety field education experience safety cautions were communicated to other family members. The evaluation also identified additional safety concerns that should be addressed in future farm safety educational programs.

For more information:

John Paul Owens
North Carolina A&T State University
145 Carver Hall
Greensboro, NC 27411

**Application of Micropropagation
in Small Scale Nursery
Production**

**Guochen Yang, Zhongge Lu,
Carl Niedziela**

North Carolina A&T State University

Micropropagation technique is a valuable and fast means for mass production of plants and rescue of endangered species. Once in vitro shoot regeneration protocols are established, plants can be rapidly propagated for mass production. Related benefits/advantages of micropropagation include but not limited to rapid mass propagation; removal of plant diseases; conservation of disease-free stock plants; clonal propagation for genetic and specific traits, germplasm conservation and maintaining biodiversity. Generally, plants with unique quality or genetic characteristics tend to be difficult or recalcitrant for multiplication by conventional methods. Therefore the particular genetic resources for crop improvement and/or maintaining genetic diversity may not be readily feasible through conventional means, and further increase the probability of losing some invaluable genetic resources. Micropropagation can perfectly fulfill the task of preserving the germplasm and maintaining the genetic diversity by rapid multiplication of the identified resource plants. Micropropagation is also cost-effective and relatively easily manageable. Micropropagated plants are usually price-competitive, and normally have a higher sale price than the traditional materials. This clearly demonstrates the advantages of a high-efficiency system with large quantities produced reducing the investment and operating costs.

Application of micropropagation could certainly help and dramatically change small-scale farmers' economic status and their competitiveness.

For more information:

Guochen Yang
224-B Carver Hall, Natural Resources,
Greensboro, NC 27411

Metal Adsorption Efficiency of Granular Activated Carbon made from Peanut Shells with Phosphate Treatment

**Hong Yang, Salam Ibrahim,
Chung W. Seo**

North Carolina A&T State University
Wayne E. Marshall
USDA-ARS

Agricultural by-products, such as peanut shells, contribute large quantities of lignocellulosic waste to the environment each growing season, but few, if any, value-added uses exist for their disposal. North Carolina currently ranks 4th in peanut production, producing 165 metric tons or 9.3% of United States production. This represents a potential of 40,000-45,000 tons of peanut shells produced each year that have little value. This creates a need to convert these by-products into useful, value-added products. Metal contamination of wastewater is a serious and ongoing problem. Since contaminated wastewater can easily find its way into both surface water and ground water, this problem should be of great concern to anyone who drinks water obtained from these sources. This study was to attempt to solve two problems of considerable environmental significance to the United States in general and North Carolina in particular by converting peanut shells to activated carbons for use in adsorption of select metal ions. Milled peanut shells were pre-treated with 50% orthophosphoric acid by soaking the shells for 24 hours. The

treated shells were pyrolyzed at different temperatures (350, 450, 550, and 650°C) and times (1 and 2 hrs) with air or nitrogen. The resulting activated carbons were washed with deionized water until no remaining phosphate acid and then dried at 110 °C for 24 hours. The prepared carbon was evaluated for adsorption efficiency of Cu, Pb, Zn, Cd and Ni in a laboratory prepared solution and was compared with commercial carbons (NORIT C GRAN with phosphate activation and DARCO 12 × 40 with steaming activation, North America, Atlanta, GA). The peanut shell-based carbon with excellent metal ion adsorption was prepared at 450 °C for 1 hr under air. Such carbon has much higher metal ion absorption than commercial carbons. This study demonstrates that a low-cost, high volume, renewable commodity by-products such as peanut shells could serve as a source for activated carbons with metal ion removing potential, and also shows that peanut based carbon has good commercial potential to be used for removing metal ions from wastewater treatment systems. It could also increase the income of peanut farmers, especially small-scale farmers.

For more information:

Hong Yang
Food and Nutrition Program
Department of Human Environment and Family Sciences
North Carolina A&T State University
Greensboro, NC 27411

Affordable and Efficient Sanitizing Techniques for Washing Vegetables Produced by Small Farmers

**Hong Yang, Maysoun Salameh,
Salam Ibrahim, Chung W. Seo**
North Carolina A&T State University

A major problem facing rural America today is the rapid disappearance of small farms. This trend is expected to continue due primarily to the lack of adequate income producing crops and low cost

technologies to help small farms maintain sustainable incomes. This economic picture could be improved significantly if farmers had access to a low cost efficient processing system for washing and packaging vegetables. With such a system on-site vegetables processing farm operations would be cost productive enabling the small farmer to market directly to consumers, reduce marketing costs, and remain competitive with larger farming operations. Currently, there is no simple conventional sanitizing method to ensure microbial safety of produce. However, chlorine dioxide and ozone have shown to improve the microbiological safety of fresh fruits and vegetables and has potential as a sanitizing agent that would be affordable to limited income growers. The purpose of this study was to evaluate the efficacy of a simple wash method using oxine (chlorine dioxide) alone or in combination with warm water. Fresh vegetables obtained from local sources were submerged for 5 minutes in one of four conditions: (1) tap water, (2) 45 C warm water, (3) chloride dioxide, (4) warm water followed by chloride dioxide, and (5) ozone. Sample homogenates were analyzed for total bacterial counts, *Enterobacteriaceae*, and *Staphylococcus aureus*. The degree of disinfection was monitored for log microbial counts reductions versus type of treatment. Results indicated that tap water could remove 50% of the initial microbial loads. Warm water at 45 C was able to further reduce microbial loads. Ozonated water with 1 ppm showed 3 log reduction of microbial population with 5 min. This study demonstrated that oxine and ozone were very effective in reducing microorganisms including pathogenic bacteria in green leafy vegetables. These agents can be used as efficient sanitizers to simply and quickly wash self-produce on small farms.

For more information:

Hong Yang
Department of Human Environment and Family Sciences
North Carolina A&T State University
1601 E. Market St.
Greensboro, NC 27411

Benefits of Cover Cropping in Conventional and No Tillage Vegetable Production

Charles W. Raczkowski, Marsha McGraw, Keith Baldwin, G.B. Reddy

North Carolina A&T State University

Two major contributing factors that have been identified as major determinants of degradation of soil and loss of productivity in the southeastern Piedmont region are: (1) excessive soil losses from improper agricultural management, and (2) degraded soil properties from excessive tillage using conventional farming methods. This study is aimed at small-scale vegetable producers that are in need of improving the quality of their soil. The objective of this study is to assess the combined use of compost, cover crops and no tillage on the improvement in soil quality relative to conventional soil management practices. In particular, we would like to know how organic matter affects soil physical, chemical, and biological processes, and how improved processes can effect crop production over the short and long-term. The study began in the fall of 2003 and an overall soil quality assessment was conducted after the harvest of pumpkins in 2004 and during the growing season of butternut squash in 2005. Quantitative indicators of soil quality included soil aggregate stability, soil pore size distribution, plant available water holding capacity, infiltration, soil respiration, microbial biomass carbon and nitrogen, C:N ratio, and CEC. This poster will emphasize results relevant to the effects of cover cropping in conventional and no-tillage.

For more information:

Charles W. Raczkowski
North Carolina A&T State University
Dept. Natural Resources
Greensboro, NC 27411

**Managing Woodlots for
Supplemental Income**

**Godfrey Ejimakor, Erin Sills,
Sarah Warren, Benny Gray**
NC A&T State University and
NC State University

The need for alternative or supplemental sources of income will intensify among small farmers in North Carolina especially the tobacco buyout program and the consequent end of the tobacco program. Small woodlots, if properly managed, could serve as supplemental or alternative income sources. This uses survey data to assess the management practices of small woodlot owners in selected counties of North Carolina and Southern Virginia. Results from the survey of small woodlot owners are presented relative to the motives and management practices of the owners.

For more information:

Godfrey Ejimakor
NC A&T State University
Dept. of Agribusiness, 145 Carver Hall
1601 East Market St.
Greensboro, NC 27411

**Molecular Tools for Truffle
Farmers: Rapid Identification of
Tuber melanosporum on
Tree Roots**

**Gregory Bonito, Omoanghe S.
Isikhuemhen**
North Carolina A&T State University
Rytas Vilgalys
Duke University

Black truffles (*Tuber melanosporum*) are prized edible mushrooms that form through a symbiotic mycorrhizal association between tree roots and the fungus. Truffles command a hefty price in the world market (\$400-\$2000 /lb), and due to a favorable regional climate truffle production has the potential of becoming a significant cash crop for North Carolina farmers. Seedlings of oak (*Quercus*) and hazelnut (*Corylus*) infected with the *Tuber* fungus are produced and distributed by commercial nurseries for transplanting into prepared soils. However, the difficulty of identifying truffle fungi on tree roots and the long lag time (4-10 years) before the first truffles are harvested makes farming truffles risky business. Our laboratories have recently developed DNA-based tools for rapidly and inexpensively verifying the presence of *T. melanosporum* on nursery and field rootstock. These developments will favor the success of truffle cultivation in North Carolina by allowing farmers to verify root stock quality and to monitor the effectiveness of management strategies on truffle growth in their fields. Small farmers in North Carolina are already engaged in truffle cultivation. This technology will help them to determine the success of their cultivation practices, by knowing if the truffle fungus exists in the root stocks and plants in the fields prior to maturation and fructification of truffles. Successful production of truffles by small farmers in North Carolina will lead to huge financial benefits on the parts of the farmers. Therefore, a tool that will help the small farmer in the line of production of truffles should be welcome at this point in time.

For more information:

Gregory Bonito
Mushroom Biology & Fungal Biotechnology
Laboratory
School of Agriculture & Environmental
Sciences
North Carolina A&T State University
Greensboro, NC 27411

Value-added Marketing of Edible and Medicinal Mushroom

Jannety Mosley, Kenrett Y. Jefferson-Moore

North Carolina A&T State University

The state of North Carolina has experienced economic devastation in the furniture, textile, and tobacco industries triggered by globalization and the outsourcing of jobs. These economic setbacks have overwhelmed the tobacco industry with over \$10 billion assessed over 10 years to growers and owners of quotas, which are licenses issued by the government to grow tobacco. Larger farmers are expected to survive; however, the small-scale, limited resource farmers will survive if there are no alternative enterprises suitable for adoption.

Therefore, through a continuing project to initiate training and assistance in edible and medicinal mushroom, we present a training module that can be utilized by rural communities in North Carolina, in particular, Halifax – Edgecombe - Wilson Presidential Enterprise Community and tobacco dependent counties. This module focuses on the business plan development in rural North Carolina with emphasis on shiitake mushroom. However, there is a significant need for micro-entrepreneurial training in counties outside of the study area. Therefore, this module can be used for various value-added enterprises.

For more information:

Jannety Mosley
North Carolina A&T State University
A-21 C.H. Moore, Agricultural Research Facility
1601 E. Market Street
Greensboro, NC 27411

Production of Specialty Cut Flowers in a Tobacco Transplant Greenhouse

Carl E. Niedziela Jr., Guochan Yang

North Carolina A&T State University

The recent passage of the tobacco quota buyout program is forcing many tobacco farmers to look for additional sources of income. Profits from additional and/or alternative crops grown in tobacco greenhouses could replace some of the lost income. A series of four greenhouse experiments are being conducted in a privately-owned tobacco transplant greenhouse near Ruffin, N.C. to determine the suitability and feasibility of several cut flower species and production systems. Production systems tested included float trays which closely duplicate the tobacco growing system; 10 inch bulb pots; plastic crates, and lay-flat bags. The production systems, except the float trays, worked well for most cut flower species tested. However, of the flower species tested, ageratum, gomphrena and sunflower did not perform well in summer production. Lisianthus grew too slowly in winter production. An economic analysis of the production systems is currently being conducted.

For more information:

Carl E. Niedziela Jr.
North Carolina A&T State University
Dept. of Natural Resources and Environmental Design
1601 E. Market St.
Greensboro, NC 27411

Taking Rural Tourism to the Next Level

Carol Kline, Jerusha Bloyer

North Carolina State University

During the last ten years, tourism development has exploded as a means of economic and community development in

rural areas where traditional industry is waning. One of the biggest issues in developing the tourism product, however, is getting an entire community to work together. It is human nature to regard a neighbor in the same industry as competition, especially in rural areas because of the historic need for citizens to be independent and entrepreneurial to survive. But, in tourism, where visitors are attracted to an area because of the wealth of activities, community members must work as a team to attract and serve visitors successfully.

Madison County is one of the most tobacco-dependant counties in North Carolina. Increasingly, farmers in Madison County are trading their traditional crops for an alternative means of income. With its unparalleled natural beauty, rich agricultural heritage, and proximity to Asheville, NC, the county is a prime visitor destination. However, the remarkable advantage is the inherent collaboration within the agricultural community.

This case study highlights the esprit de corps among Madison County farmers in their desire to develop value-added services on their property. In particular, there was a strong desire to expand their knowledge base, confidence and interactions with other community members by means of a thorough training series offered throughout the year. As well, an "internal familiarization tour" of the county was planned to afford farmers the means to visit and learn about the other tourism sites in the county.

For more information:

Carol Kline
Dept. Parks, Recreation & Tourism Mgt
NCSU , Box 8004
Raleigh NC 27695-8004

**Knowledge and Attitudes of
Producers and Consumers toward
Ag Biotechnology**

**E. Ekanem, M. Mafuyai-Ekanem, F.
Tegegne, S. Muhammad, S. Singh**
Tennessee State University

This poster presents information collected as part of a bridge grant project awarded by the USDA, under the Initiative for Future Agricultural and Food Systems (IFAFS), to Tennessee State University (TSU). Research scientists and Extension professionals from North Carolina A&T State University, the University of Arkansas, Fayetteville, and the University of Arkansas at Pine Bluff collaborated with TSU on the project. Trained moderators and facilitators convened 1-hour to 1½ - hour focus groups meetings to gather answers to questions from focus group participants in states collaborating on the project. Using findings from the meetings, this poster presents information on farmer and consumer attitudes towards agricultural biotechnology. Group responses to targeted questions were used in assessing how consumers and producers perceived agricultural biotechnology. Four specific areas of inquiry were explored in the focus group meetings: knowledge of the science of biotechnology, key biotech issues, perceptions of risks and benefits of biotechnology and the role of government. A qualitative approach was used in analyzing data collected. Specific findings from the study and policy implications of findings are presented.

For more information:

E. Ekanem
Tennessee State University
IAgER, Box 9610
3500 John Merritt Blvd.
Nashville, TN 37209

**Organic and Conventional Farming
Systems
Soil Quality Comparison**

Alan Sundermeier
Ohio State University Extension

In 2001, a replicated farming system experiment was established in Northwest Ohio to gain a better understanding of what occurs with crop production and soil changes when farmers transition from one management system to another. The treatments chosen for this experiment represent a range of conditions experienced by farmers transitioning either to organic or other more diversified crop management systems. Overall, the experiment is addressing ways to maintain production and economic viability while building soil quality. Five replicate blocks were established of each of five farming systems: #1 – No-till conventional corn, soybean, wheat rotation; #2 – Integrated reduced input tilled corn, soybean, wheat rotation; #3 – Organic corn, soybean, wheat rotation; #4 – Organic forage and grain rotation; #5 – Organic multi-crop rotation. Four years of multiple site soil sampling 0-15cm deep were analyzed for the following soil quality properties: total soil organic matter, particulate organic matter, total nitrogen, microbial biomass nitrogen, nitrate nitrogen, and bulk density. After four years, total soil organic matter was 2.9% in farming system #1, compared to 3.7% organic matter in farming system #2 & #4, and 3.4% organic matter in farming system #3 & #5. Soil data indicate that the organic systems are shifting to greater biological control of the nitrogen cycle.

For more information:

Alan Sundermeier
Ohio State University Extension
440 East Poe Road, Suite 101
Bowling Green, OH 43402

**Bringing Southern Ohio Farms to
Life Through the "Small Farm College"**

**J.F. Grimes, L.A. Nye, D.A. Dugan,
J.C. Fisher, R.A. Sherman,
R.D. Stephenson.**

The Ohio State University Extension

Increased clientele requests from new and small farm owners indicated a need for a comprehensive farm ownership and management program. The "Southern Ohio New and Small Farm College" was developed for landowners wanting to make the most of living on a small farm. Forty-two individuals from 11 counties participated in the eight-week program. Class topics included: *Getting Started in the Planning Process, Sources of Assistance, Agricultural Legal Issues, Inventory of Natural Resources, Financial and Production Record Keeping, Crops and Horticulture, Animal Production, and Marketing*. The course included a single day tour of successful alternative agricultural enterprises within the southern Ohio region. The clientele of the New and Small Farm College reported an average farm size of 86.2 acres with an average length of ownership of 6.15 years. According to a pre-program survey, only 35.5 percent had previously attended an Extension educational program. Participants were made aware of available resources through instructors representing OSU Extension, government agencies, elected officials, and private industry. Post-program surveys indicated 82.1 percent of the participants developed a plan or changed their existing plans for use of their property after attending the New and Small Farm College. Participants evaluated the overall program a 9.3 out of a 10.0 scale, with 100 percent stating they would recommend this program to other small farmland owners.

For more information:

J.F. Grimes
The Ohio State University Extension
111 S. Nelson Ave., Suite 2
Wilmington, OH 45177

Development of a Task Force to Provide Education and Leadership to the Emerging Meat Goat Industry

L.A. Nye, J.C. Fisher, D.A. Mangione, D.A. Dugan, R. Lewandowski, D. Samples, W. Joslin.

The Ohio State University Extension

Meat goats, as an enterprise, did not have supporting infrastructure relative to a commodity based organization, university sponsored education and research, or well known marketing channels. To address these needs, the *Ohio Meat Goat Industry Task Force* was formed with a mission to enhance meat goat production and marketing through education and practical experience. The objectives are: 1) identify and access emerging ethnic markets having a preference for goat meat in their diet, 2) develop producer networks, alliances and/or cooperatives to meet demands of emerging markets, and 3) provide leadership for education and research.

Extension members of the task force have developed the *Ohio Meat Goat Production and Budgeting Fact Sheet* as a guide for establishing this enterprise. Extension Educators have designed and conducted regional workshops, seminars, and on-farm tours to transfer knowledge to 1200 participants. Education, production, and marketing topics are discussed in the *Buckeye Meat Goat Newsletter*.

Leadership development has been a primary objective of the Ohio Meat Goat Task Force. Producer members have been instrumental in the formation of the *Buckeye Meat Goat Association* for the purpose of promoting and marketing commercial goat meat. Three producer-driven marketing networks are developing relationships with ethnic and faith-based consumers as a social approach to building the meat goat industry. This foundation infrastructure will create value-added

economic development for refugees in our urban centers and small farms in the rural/urban interface.

For more information:

L.A. Nye
The Ohio State University Extension
111 S. Nelson Ave., Suite 2
Wilmington, OH 45177

The Ohio Ag Manager-A Team Approach to Providing Farm Management Information

David Marrison, Chris Bruynis
Ohio State University Extension

Due to budget cutbacks, the number of State Specialists in the area of Farm Management in Ohio was reduced to two in July of 2004 and then to one by December 31, 2004. Recognizing the need to help maintain OSU Extension's farm and agribusiness management programming the Ohio Ag Manager Team was established in the summer of 2004.

The team has developed the Ohio Ag Manager website (<http://ohioagmanager.osu.edu/>) and published a monthly electronic newsletter for Ohio's Agriculture and Business Community since July, 2004. The specific goal of the monthly electronic newsletter is to deliver information relevant to the management of agricultural businesses in succinct articles. Each article is linked to full reports or websites providing the manager with more detailed information. Seven to ten articles are included each month. Some of the issues discussed include budgeting, labor management, ag lending, farm custom rates and estate planning.

The newsletter is currently emailed to the 88 County Extension offices in Ohio and to 259 farmers and agribusinesses who have subscribed to the Ohio Ag Manager electronic list serve. Many of these articles are utilized by County Extension Educators

in their country newsletters and news columns. Other farm organizations and publications such as the Small Farmer Magazine, Ohio Farm Bureau, Ohio Farmers Union, The Ohio Farmer Magazine have utilized articles in their publications. In addition, national publications such as National Hay & Forage Growers Magazine have sought and received permission to utilize articles from the Ohio Ag Manager Newsletter.

For more information:

David Marrison
Ohio State University Extension
39 Wall Street
Jefferson, OH 44047

**A Hands-on Approach to Teaching
Pesticide Recertification**

**David Marrison, E. A. Draper, R.H.
Zondag, S. J. Hudkins, L.C. Ober**
Ohio State University Extension

The State of Ohio has 17,500 farmers with private pesticide applicator's license to spray restricted chemicals in agricultural and horticultural operations. OSU Extension assists the Ohio Department of Agriculture by providing the mandated recertification training. Each private applicator must receive three hours of recertification credits every three years. Extension Educators transformed the teaching style for this mandated training from lecture oriented to a hands-on approach. We show how County Agricultural Agents can "think outside the box" to develop interactive teaching units for even the toughest agricultural subjects.

It was the goal of the teaching team to revamp the instructional format of the recertification sessions for the counties of Ashtabula, Lake, Geauga, and Trumbull Counties in Northeast, Ohio. Eight sessions were taught in 2004-2005 with 371 private pesticide applicators

participating. The teaching team incorporated hands-on diagnostic problems for weed identification, chemical selection, sprayer diagnostics, personal safety equipment, and nozzle selection. Changing the instructional format from a teacher centered to a student-centered approach has received many compliments. Anecdotal statements from the post-program questionnaire included comments like: "Great improvement over old format", "best Extension program I have attended" and "better than before-I really learned".

Attendees indicated that 99% (n=368) preferred the hands-on teaching approach. In addition, 100% indicated they understand personal protective safety equipment better, 99% indicated they plan to evaluate their sprayer for potential problems, 99% indicated they better understand the environmental concerns when applying pesticides, and 97% better understand the new herbicides as a result of the hands-on teaching method.

For more information:

David Marrison
Ohio State University Extension
39 Wall Street
Jefferson, OH 44047

**Bridging Gaps in
Programs and Services**

**Linda J. Brewer, Garry
Stephenson, Anita Azarenko**
Oregon State University Extension
Service

The Extension Service's dominant pattern of directing programming toward large-scale, commodity agriculture leaves information gaps. Growers with highly specialized enterprises or cropping systems must sort through large volumes of university-generated information to find fragments relevant to their concerns. Oregon State University Extension Service has put new life into the old concept of

grower guide by effectively assembling information focused on specific grower interests, bridging crucial information gaps. These "growers' guides" use market segmentation to reach highly specialized niche marketers and practitioners of emerging farming systems. Three new grower guides integrate widely dispersed information so growers with specialized interests may easily access pertinent university services, publications, and faculty expertise.

In addition to assembling targeted information, the guides have created new and valuable partnerships between O.S.U. and clientele groups. For instance, The Organic Farmers' Guide to Oregon State University was a collaborative effort between O.S.U. and Oregon Tilth, the major organic certification agency in the region; support from the clientele group came in terms of financial resources and review. Concept and content of the Specialty Seed Growers' Guide has been driven by the community of interest.

These guides are, first of all, tools for their intended audiences. Their development also reflects participatory thinking in a variety of nominal and substantive ways. In subtle ways, these publications are symbolic of a paradigm shift and are reshaping the land-grant institution, enhancing the relevance of its mission, and sustainability of its methods.

For more information:

Linda J. Brewer
Oregon State University Extension Service
203 Ballard Extension Hall
Corvallis, OR 97331-3601

**Designing a Management Skills
Development Program:
A Texas Example**

William Thompson
Texas Cooperative Extension

Tomorrow's Top Agricultural Producer (TTAP) is a program designed by Texas Cooperative Extension to develop business management skills of "Career Oriented" producers. Unique aspects of this program are the development of a complete, detailed business plan throughout the course of the program, and a mentoring team that was matched with each operation upon completion of the program. The first TTAP class began in the fall of 2002 and formal instruction concluded in January 2004. Mentoring activities were conducted throughout the remainder of 2004 and into 2005. Final evaluations are in the process of being concluded for the actual program and the mentoring experience.

The first TTAP class encompassed 115 hours of instruction during four sessions. Session I covered the basic business plans and the planning process. During this session participants also began an assessment of their operations through a resource inventory, SWOT analysis and an introduction to financial statements and financial analysis. Session II focused on financial planning and development of a managerial accounting system. Between sessions II and III class participants completed the transition to the new accounting system and completed a risk assessed financial analysis of their operations. Session III addressed the marketing components of the business plans. The business plans were completed in Session IV. Participants were introduced to their mentoring committee and made formal presentations of their plans.

Comments and suggestions from participants, educators and administrators were collected and revisions of course

content and delivery for the second class beginning in November 2005 are underway.

For more information:

William Thompson
Texas Cooperative Extension
P.O. Box 1298
Fort Stockton, TX 79735

Integrated Small Scale Farms

Robert Godfrey

University of the Virgin Islands

A Model Integrated Small Farm for the U.S. Caribbean and Pacific Islands M. McGuire, R.W. Godfrey, J.W. Brown, M. Marutani and J.E. Rakocy, Agricultural Experiment Station, University of the Virgin Islands, St Croix, College of Natural and Applied Sciences, University of Guam.

Island agriculture faces challenges such as limited land and water, small local markets, competition from imported goods and high costs for inputs. This project was designed to evaluate a small scale, integrated farming system for use in the Caribbean and Pacific islands. In the USVI a 2 ha farm was established to produce tilapia, fruits and vegetables.

The farm can collect and store rainwater in a 4200 m² catchment and a 500 m³ storage pond. There are seven 80 m³ fish tanks, a 150 m³ effluent storage pond, 1.2 ha of intensive crop production and a water and effluent distribution system. Early work has focused on evaluating crop varieties, establishing markets and increasing productivity. In Guam, the farm was established on 1.5 ha of land. The animal component consists of goats on rotational pasture, layer hens on sloping straw bedding and tilapia in a recirculating aquaponics system. The plant component consists of fruit and vegetable production with a vegetable-green manure rotation planted between rows of fruit and vegetable crops, the plant component of

the aquaponics system and pastures. Effluent from the aquaponics system is transferred to the fruit/vegetable production unit. The layer bedding is composted and used as mulch along with the green manure in the fruit/vegetable unit. The primary problems that have been encountered have been in the areas of plant protection, labor efficiency and marketing. Financial analysis of both systems will allow us to establish design criteria in order to optimize the profit potential of the integrated system.

For more information:

Robert Godfrey
University of the Virgin Islands, AES
RR 1, Box 10,000
Kingshill VI 00850

Predicting Nutrient Availability from Organic Materials

Craig Cogger

Washington State University

Organic and conventional farmers consistently rank nutrient management as a top priority informational need. A key concern is nutrient availability from organic materials.

With the Initiative for Future Agriculture and Food Systems, we initiated two projects to address organic nutrient management. The first is designed to improve our ability to predict nitrogen availability from organic soil amendments. The second evaluates nutrient management in the context of a holistic systems experiment, comparing effects of 12 organic management systems on vegetable crop production, soil quality, weed and pest pressure, and production economics.

Organic soil amendments: Composted and uncomposted forms of broiler litter, yard debris, dairy manure solids, and rabbit manure, along with other organic sources

of nutrients, were assessed in field N uptake experiments at two locations. Each material was also evaluated using laboratory incubations and modeling. We found that we could predict N availability based on C:N ratio and degree of decomposition of the materials. Broiler litter supplied 20-25 lb available N per ton as-is, uncomposted rabbit manure supplied about 5 lb N/ton and yard trimmings supplied about 3 lb N/ton. Dairy solids and composted yard trimmings did not supply enough N to be used as fertilizers.

Organic systems: Treatments in the vegetable production experiment (12 combinations of amendment, cover crop, and tillage) were developed based on extensive input from local organic farmers. Preliminary results show that amendment affected soil organic matter, bulk density, potassium, infiltration rate, and crop yield but has not had a measurable effect on aggregate stability or compaction. Tillage affected compaction and infiltration. Analysis of weeds, biological activity, and production economics, along with further analysis of soil physical properties is in progress. We plan to continue this experiment for at least 10 years.

For more information:

Craig Cogger
Washington State University
7612 Pioneer Way East
Puyallup, WA 98371

**Looking Beyond Limitations:
Ergonomics & Adaptations for
Small Farms**

Stacy Miller
West Virginia University

West Virginia is topographically unique, with small diverse farms scattered among mountains, forests, small towns, and extractive coal and logging industries.

Small economies of scale have made farming difficult for many to sustain on a full-time basis. With increasing numbers of direct-marketing farms and a decline in dairies, grain farms, and other large commodity operations, the rural face of West Virginia is changing dramatically. Small farms, whether niche or diversified direct-marketing enterprises, require skill sets, tools and equipment that are wholly distinct from those of large commodity-type operations. For those working off the farm either full-time or part-time, the tendency to perform farm chores after a long day at work and without the aid of hired labor makes the potential for accidental injury greater. Cattle farming (representing about 50% of all West Virginia farms), coal mining, and logging are dangerous industries that often leave workers injured and looking to maintain a self-employed rural lifestyle.

This poster will examine some of the statistics relevant both to West Virginia as a state of small farms and as a state with a high prevalence of disabilities among both adults and children. Given such trends, the West Virginia AgrAbility Project (funded through USDA/CSREES) provides services to farm families living and working with disabilities and limiting chronic conditions. Identifying task modification and communicating ergonomic principles is most critical in sustaining small farms, as they tend to rely more heavily on physical labor of the owner/operator. This poster discusses the services provided to small farmers by the West Virginia AgrAbility Project as well as providing context through profiles of actual clients served through the program.

For more information

Stacy Miller
Center for Excellence in Disabilities
Robert C. Byrd Health Sciences Center
West Virginia University
959 Hartman Run Road
Morgantown, WV 26505

The Economics of Organic and Grazing Dairy Farms

Tom Kriegl
University of Wisconsin

Ten Land Grant Universities plus Ontario have standardized accounting rules and data collection procedures to gather, pool, and analyze actual whole farm financial performance from many sustainable, small farming systems which previously lacked credible financial data that producers need for decision-making.

Over 150 individual management intensive rotationally grazing (MIRG) dairy farms contributed data to this project from 2000 through 2004. This is the largest and most comprehensive set of data for grazing dairy farms on the continent (this may also be true for the organic dairy farms which are a subset of the grazing data). Graziers are economically competitive.

Because most organic producers experience a multi-year transition into organic production, the stages of progression of individual organic farms is being analyzed separately in this project, to better understand and fairly compare the financial performance of organic dairy farms. The average dairy farm that is receiving "organic prices" and has supplied data is economically successful.

The up-to-date conclusions of this USDA IFAFS grant sponsored project #00-52501-9708 can be accessed at <http://cdp.wisc.edu>.

The financial data in this report have been widely distributed to participating farmers, county extension agents, vocational-agricultural instructors, lenders and agricultural professionals both in and outside of the cooperating states.

The procedures used here can be expanded beyond dairy farms, creating a new paradigm by which Land Grant Universities and other institutions use

farm financial data to help farm families in all future enterprises.

For more information:

Tom Kriegl
University of Wisconsin Center For Dairy Profitability
Animal Sciences Building Rm 202
1675 Observatory Drive
Madison, WI 53706-1284